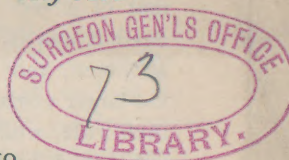
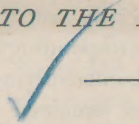


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AN INTERESTING CASE OF BUZZ-SAW INJURY
TO THE HEAD.



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Mr. F., aged thirty, a robust farmer, received a severe wound of the head about nine years ago, by falling against a large circular saw, while it was in motion. The wound extended from about the upper third of the forehead along the line of the longitudinal sinus to almost the crown; the skull being completely sawn through for a space of about four inches in length and half an inch in width; breaking the attachment of the falx cerebri for over three inches, and entirely destroying the longitudinal sinus for nearly the same distance.

A council of physicians was held to consider the advisability of removing any spicules of bone that might be pressing on the brain; but, as too often is the case, this council came to nought from a disagreement; some favoring an operation, but the majority objecting to surgical interference.

He being a man of exemplary habits, and the Lord being on his side, notwithstanding his severe injury he lived through it all, and made a rapid recovery, but only to eke out a miserable existence the remainder of his life. He was only confined to his bed for a few days, the wound healed rapidly, and he was soon out and attending to his daily avocations on the farm.

For the next four or five years he enjoyed comparatively good health; about this time, however, it was observed that a perceptible change was taking place in the skin and vascular system, with an appre-

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ciable enlargement of the head. These symptoms gradually increased until the time of his death, some four or five years later (Dec 31, 1885).

The skin commenced to gradually change from its natural color to that of a red hue, which increased in intensity until at the time of his death it was an intense florid, especially over the face, while on the breast, abdomen, and down the legs, corresponding to the normal locations of the larger veins, were intense red bands varying from half an inch to an inch wide, while the skin between remained more nearly of a normal color, and his hands became covered with warty excrescences. The coats of the veins all over the body had by this time lost their elasticity and assumed a varicose condition, the heart sounds had become diminished, and the arteries had lost, to a great extent, their tone and elasticity.

For the last three years of his life, there was a tendency to the formation of multiple abscesses, especially about the face and hands, which only healed with the greatest difficulty, and when relieved in one place repeated themselves in another.

His last illness commenced about five days prior to his death. He had at that time a number of large abscesses on the left hand and a fistulous opening in the right cheek, and was taken down with pyemia, from which he died Dec. 31st, 1885.

The post-mortem was made thirty-six hours after death, by Dr. J. Harvey Craig, in the presence of Dr. J. W. Craig and the writer. It revealed that nature had made a desperate effort to restore all the parts to a normal condition, and had almost closed the wound in the skull, leaving only an opening sufficiently large to admit a darning needle, about the center of the wound. The entire skull was abnormally soft; even the vitreous table being so degenerated as to be easily cut with a cartilage knife, the entire skull having about the hardness of the cancellated structure of the long bones.

On removal of the calvarium, a large spicule of bone was found projecting from the right side of the opening in the wound, and in front; being fully the third of an inch long and the fourth of an inch wide, while the whole inner surface of the calvarium was rough and uneven. The dura-mater was decidedly thickened throughout, and adherent to the pia mater at various places, with destruction of the intervening arachnoid, but especially in the immediate region of the wound the adhesions and thickening were more marked, and it was with great difficulty the membranes could be removed without tearing the brain substance. The

membranes being removed there was observed an unusual number of abnormally large veins, which no doubt were due to nature's effort to establish the collateral circulation, owing to the entire destruction of over three inches of the longitudinal sinus in the immediate vicinity of the wound, the remainder of the sinus being about normal.

A recent blood clot about the size of a Japan bean was found on the right hemisphere, opposite the middle of the wound and half an inch to the side. All the veins of the brain were engorged, while patches of lymph coated almost the entire upper surface of the brain, accompanied with effusion.

The brain was unusually dense all through, excepting in the immediate region of the wound, where incipient softening was apparent. The partial destruction of the falx cerebri allowed the brain to settle down, as it were, which gave it a squatty appearance, which, with the softened condition of the skull, will probably account for the abnormal enlargement of the head, which was greatest laterally, and antero-posteriorly.

On further examination of the brain, nothing of importance was revealed, other than effusions into the ventricles which were both well nigh filled with serum.

In summing up this interesting case, we are led to the following conclusions, which are fully indorsed by Dr. Craig and son:

First—That the injury to the head received some nine years since, causing a spicule of bone to project against the brain substance, and thus keep up a constant irritation, produced a depressed action of the whole nervous system, but especially of the vaso-motor.

Second—This partial paralysis of the vaso-motor nerves accounts for the discoloration of the skin, and also for the material interference with the nutrition.

Third—Mal-nutrition was followed by a multiplicity of warty excrescences on the extremities, and the continual formation of numerous abscesses.

Fourth—These abscesses were finally followed by pyemia and death.

Would it not have been good surgery to have removed this spicule of bone at the proper time?

The above case is interesting, primarily, in that it recovered at all; secondarily, from the peculiar train of symptoms that followed, undoubtedly from the irritation produced by the spicule of bone that projected

Into the brain, and, in the third place, in that it was a proper case for operative interference.

It is true, if there is any one class of cases that are baffling and perplexing to surgeons, it is injuries of the head, with all their multiplicity of forms and endless variety of symptoms. One patient will recover from wounds that are apparently of a fatal character; while the next patient dies from what appears to be the most trivial injury. Until comparatively recently, operative interference for injuries of the skull was looked upon with a great deal of discredit, and only those cases were operated on which had received compound, or compound comminuted fractures with marked compression of the brain; and then only the bolder surgeons would pretend to interfere and give the poor unfortunate what little chance there was left for his life. More recently, however, great advances have been made in this line of surgery by modern surgeons, to which aseptic dressings have given a decided impulse, by removing many of the dangers formerly attending such operations; and now wounds of the head, that formerly were treated on the expectant plan of "waiting for something to turn up," are being fearlessly dealt with, the same as injuries of a similar character occurring in other parts of the economy. Abscesses of the brain are exposed by trephining and their contents given free exit by the use of the bistoury and drainage tube, or of the vacuum syringe and probe-pointed needle; and patients that heretofore were unconditionally consigned to the tomb, are given a new lease on life, at the rate of 50 per cent. as reported by Blun, and over 50 per cent. according to Virchow, in cases that without operative interference show a mortality ranging from 90 to 100 per cent.

It requires time to obliterate the impressions and prejudices formed in the minds of the profession by such men as Sir Astley Cooper, who opposed all surgical interference with the brain, not even to the removal of an offending spicule of bone that was penetrating the brain substance itself. But thanks to the progressive spirit of the present age, such objections are becoming as "sounding brass and a tinkling cymbal" in the ears of the majority of modern surgeons, and instead, we find such men as Fenger, Nancrede, Ashhurst, Bontecou, Peck and others of America, and Dupuytren, Guthrie and many more of equal merit and ability in Europe, not only recommending such operations, but proving them a success by repeated practical demonstrations. Nay more, the operation that after one trial by La Motte, in 1705, lay dormant for ninety-nine

years, to be resuscitated by Dudley, of Kentucky, in 1828, is now being revived with remarkable success, and operative interference, for the relief of epilepsy and insanity, not only recommended but practiced by such men as Briggs, Gross, Pancoast, Sayre, Byrd, Bigelow, Gilmore, Warren, Brainard, Dawson, Hayward, Van Buren and other American surgeons of acknowledged ability and national reputation, who, by the free use of the trephine in these dreaded diseases, especially epilepsy, have met with a degree of success that we, as Americans, may well be proud of; especially when 92 American operations for epilepsy show 63 recoveries, 13 relieved, 2 not relieved, with only 14 deaths. On the other side of the Atlantic are reported 82 operations to which are to be added 48 American operations, making in all 130 cases, of which 75 were completely cured, 18 improved, 7 unimproved, and only 30 died, while to this we must add 30 cases operated on by Briggs, of Tennessee, alone, of which 25 were cured, 3 relieved, 1 not changed, and only 1 died. If such results can be obtained by operative interference in epilepsy, saying nothing of the use of the trephine in abscesses of the brain and for insanity, why should surgeons stand with folded arms and allow their patients to either die, or live a life of misery worse than death, when surgical skill, properly applied, could have given relief?

It is remarkable what an amount of injury the brain will endure, and the patient still survive. I remember attending a young man whose brain was literally riddled with pieces of lead from a gun-shot wound, who, after three or four pieces of lead had been removed from the brain substance, in which they had been buried to the depth of two inches or more, yet lived for over 90 hours, notwithstanding more than a score of pieces of lead and skull had pierced the brain in every direction, as was shown by the subsequent autopsy. In another case that came under my care, the right side of the frontal bone was literally crushed and driven down on the brain. This I removed, and the patient lived for eight days, although a post-mortem showed that the counter-violence sustained by the back portion of the brain and skull had driven a spicule of bone into the base of the brain and formed a blood clot which caused death. In another case, a kick from a horse crushed in the skull over the back part of the head which was forced down on the torcular herophili with great violence. In this case I assisted Dr. J. W. Craig in removing (some three days after the accident,) a number of large fragments of bone; after which the boy fully recovered without a single bad symptom, the opening in the skull having been supplied, by nature, with sufficient

bony tissue to close it. A remarkable case is reported by Prof. Briggs, in which a patient of his carried an ounce minnie ball imbedded in his brain for over a year. It was removed by trephining, and the patient recovered.

On the other hand, patients often die from what appear to be the most trivial injuries. Last week I was called to make a post-mortem on a Polander who was alleged to have been assaulted by two ruffians who demanded his money, and in the attempt to rob him struck him over the hand, and also over the left malar bone, with a club. The old man went home and reported what had been done, took sick, called a German quack, who told the family "his tongue was broken and his gall bladder bursted," and "he could'nt live." Sure enough he did'nt live, but died in just two weeks after the injury with decided cerebral symptoms. Externally there was but a light abrasion of the skin over the malar bone, with ecchymosis extending over the side of the face, no fracture of any bones; but about the middle of the latter third of the median fissure was a large blood clot, and also about two inches to the left of that one, and between the larger and smaller brains was another, which had produced compression, inflammation and death; and yet the violence had not been great. A sacculated hydatid tumor located in each lateral ventricle, together with calcarious degeneration of the arteries may account for the results, notwithstanding the violence was apparently insignificant.

Thus these cases of brain injuries might be multiplied indefinitely, by surgeons in active practice. The question, however, that naturally arises, in the minds of all practical surgeons, is whether trephining is good surgery at all; and, if so, when, and under what circumstances? This is a question that should be well settled in the mind of every modern surgeon; all that he should have to do when he arrives at the side of the wounded is to ascertain the degree of injury, which should be his guide as to the mode of treatment. He has no time then to look up authorities, nor can he take the chances of making a mistake, either by omission or commission.

Prof. Gunn, in an able paper on the "Treatment of Fractures of the Skull" read before the American Surgical Association in 1882 and reported in Vol. I of their transactions, says: "As in compound fractures the removal of loose fragments or the elevation of the depressed portion of the bone, even though requiring the use of Hey's saw or the trephine in order to effect such elevation, does not materially add to

the dangers of the case; so now in a case of simple fracture, which through improved methods, we venture to make compound, we may confidently proceed to a full correction of the displacement. Such operative procedures are, however, contraindicated when symptoms of violent concussion with the attendant tendency to collapse are present; but in the absence of symptoms, or when the symptoms point to compression instead of concussion, operative measures should be promptly instituted."

Prof. Gross, in the same volume, says in his remarks on Prof. Gunn's paper: "In all recent fractures with depression, if the latter be moderate, whether simple or compound, the patient should be left alone. If, however, fixed and severe pain at the point of injury, febrile excitement, increase of local temperature, and a commencing puffing of the scalp supervene, within a few days after the accident—signs which are indicative of depression of the internal table and the development of pachymeningitis—elevation of the depression should be promptly effected. In all recent fractures, whether simple or compound, attended with symptoms of compression, the trephine should be resorted to; and the same rule should apply, whether symptoms be present or not, if the depression be considerable and funnel-shaped. Punctured fractures should invariably be subjected to operation."

I heard Dr. Roberts, of Philadelphia, read an able paper before the American Surgical Association last year in which he advocated the free use of the trephine, and even recommended it for diagnostic purposes under certain circumstances, in which he said "perforation of the cranium is to be adopted as an exploratory measure almost as often as it is demanded for therapeutic reasons." As to the dangers of such operative procedures he said: "The removal of portions of the cranium by the trephine or other cutting instruments is, if properly done, attended with but little more risk to the life than amputation of a finger through the metacarpal bone."

With such authorities at our back, besides scores of other equally prominent surgeons, who advocate the free use of the trephine in proper cases, I feel that we are justified in resorting to this operation more frequently than has generally been advised by our older surgeons; for as demonstrated by the unerring hand of practical experience the use of the trephine, especially when guarded by the precautions of antiseptic surgery, is not more dangerous than other operations of equal magnitude in other parts of the human economy.

The first of these was the discovery of gold in California in 1848. This discovery led to a great influx of people to California, and the state became a great center of population. The second was the discovery of gold in Nevada in 1859. This discovery led to a great influx of people to Nevada, and the state became a great center of population. The third was the discovery of gold in Colorado in 1858. This discovery led to a great influx of people to Colorado, and the state became a great center of population.

The fourth was the discovery of gold in Idaho in 1860. This discovery led to a great influx of people to Idaho, and the state became a great center of population. The fifth was the discovery of gold in Montana in 1862. This discovery led to a great influx of people to Montana, and the state became a great center of population. The sixth was the discovery of gold in Wyoming in 1869. This discovery led to a great influx of people to Wyoming, and the state became a great center of population. The seventh was the discovery of gold in Utah in 1871. This discovery led to a great influx of people to Utah, and the state became a great center of population.

The eighth was the discovery of gold in Arizona in 1876. This discovery led to a great influx of people to Arizona, and the state became a great center of population. The ninth was the discovery of gold in New Mexico in 1878. This discovery led to a great influx of people to New Mexico, and the state became a great center of population. The tenth was the discovery of gold in Texas in 1880. This discovery led to a great influx of people to Texas, and the state became a great center of population. The eleventh was the discovery of gold in Oklahoma in 1889. This discovery led to a great influx of people to Oklahoma, and the state became a great center of population.

The twelfth was the discovery of gold in Kansas in 1890. This discovery led to a great influx of people to Kansas, and the state became a great center of population. The thirteenth was the discovery of gold in Nebraska in 1891. This discovery led to a great influx of people to Nebraska, and the state became a great center of population. The fourteenth was the discovery of gold in Iowa in 1892. This discovery led to a great influx of people to Iowa, and the state became a great center of population. The fifteenth was the discovery of gold in Missouri in 1893. This discovery led to a great influx of people to Missouri, and the state became a great center of population.